

REMARKS

Claims 29 - 38 are presently pending in the Application and those claims were previously allowed over the previously cited prior art. The Examiner withdrew the indicated allowability of claims 29 - 38, in the present Official Action, rejects those claims over newly cited prior art. In particular, claims 29 - 38 are rejected, under 35 U.S.C. § 103, over the previously cited Hunter et al. '231 (U.S. Patent Publication No. 2002/0125231) in view of newly cited U.S. Patent No. 6,333,572 to Ono (hereafter "Ono '572"). The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

As explicitly recited in independent claims 29 and 34, and thereby in dependent claims 30 - 33 and 35 - 38, the present invention is directed to a method of laser micro-machining a workpiece with a laser wherein the workpiece is mounted on a carrier that is displaceable in the X, Y and Z axes and an image generated by an output beam from the laser is focused on the workpiece at a working datum position or distance that is determined by a distance sensing device. According to the present invention, variations in the thickness or Z position of the workpiece and thereby variations in the Z position of a first surface of the workpiece, that is, the surface of the workpiece being acted upon by the laser, are determined by "floating" an element, or "puck", of the measuring device on a fluid cushion so that the measuring device element is at a fixed distance above the first surface of the workpiece. Variations in the thickness of the workpiece or in the Z position of the workpiece thereby result in a Z-axis displacement of the first surface of the workpiece and a corresponding Z-axis displacement of the measuring device "puck", which is, in turn, coupled to the laser focusing elements to correspondingly adjust the working datum distance of the laser beam.

The Examiner concurred, in previous Official Action, that Hunter et al. '231 and the other previously cited prior art references do not teach, suggest or disclose these recited features of the present invention, so that claims 29 and 34 and the dependent claims were and are

patentably distinguished over the previously cited prior art. The Examiner now holds, however, that Ono `572 allegedly teaches these elements of the present invention and that it would be obvious to combine the teachings of Ono `572 with Hunter et al. `231 and thereby result in the presently claimed invention. In view of the following reasons, the Applicant respectfully disagrees with the Examiner's interpretations of Ono' 572 and the combination of Ono `572 with Hunter et al. `231.

Ono `572 relates to a system in which the thickness of the workpiece is known and fixed, and which thereby does not face the problems addressed by the system of the present invention. In accordance with this situation, Ono `572 explicitly teaches a system in which the workpiece is affixed to a carrier so that the "first surface" of the workpiece is at a fixed distance from the laser and the laser focusing elements. There is therefore never any need to adjust the distance between the first surface of the workpiece and the laser focusing elements during operation of the system, or the reverse, because the laser is always operating at a fixed, constant distance. As a consequence, and in direct and fundamental contrast from the system of the present invention, the system taught by Ono `572 does not provide a means for *dynamically* adjusting the distance between the laser and laser focusing element and the first surface of the workpiece to accommodate variations in the thickness of the workpiece or variations in the Z-axis location of the first surface of the workpiece.

Instead, and in complete and fundamental distinction from the present invention, Ono `572 teaches that the carrier supporting the workpiece should be suspended on a non-friction cushion comprising a fluid (air) cushion or magnetic fields.

Ono `572 thereby does not teach or suggest "floating" an element, or "puck", of a measuring device on a fluid cushion so that the measuring device element is at a fixed distance above the first surface of the workpiece and so that variations in the thickness of the workpiece or in the Z position of the workpiece thereby result in a Z-axis displacement of the first surface

of the workpiece and a corresponding Z-axis displacement of the measuring device "puck", which are then coupled to the laser focusing elements to correspondingly adjust the working datum distance of the laser beam.

Ono '572, in fact, has no corresponding device or apparatus, floating or otherwise, for measuring the distance between the first or working surface of the workpiece and the laser focusing elements or for adjusting the focal distance of the laser beam to accommodate variations in the thickness of the workpiece or in the Z position of the workpiece, as presently recited.

Ono '572, like Hunter et al. '231, therefore does not teach or even suggest this feature of the present invention to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. 103, so that the combination of Ono '572 with Hunter et al. '231 cannot and does not teach or suggest this feature of the present invention, under the requirements and provisions of 35 U.S.C. 103. As a consequence, it is the belief and position of the Applicant that claims 29 and 34, and thus dependent claims 30 - 33 and 35 - 38, are fully and patentably distinguished over and from Hunter et al. '231, Ono '572 and/or Hunter et al. '231 in view of Ono '572 for the reasons discussed above. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of the claims over Hunter et al. '231 and/or Ono '572 and allow claims 29 - 38 as presented herein above.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Hunter et al. '231 and/or Ono '572 references, the Applicant respectfully requests the Examiner

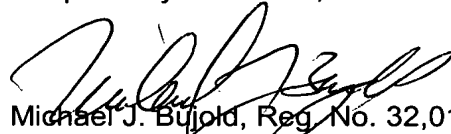
to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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